

CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society
Of America

VOL. IV

MAY, 1933

No. 11



Cereus Huntingtonianus
See page 374



Journal of the
CACTUS AND SUCCULENT SOCIETY OF AMERICA

Published by

THE CACTUS AND SUCCULENT SOCIETY OF AMERICA

EDITORIAL OFFICE: 6162 Pasadena Ave., Los Angeles, Calif.

A monthly magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. "The Cactaceae," by N. L. Britton and J. N. Rose, has been adopted by this Journal for purposes of identification. (Membership and subscription \$3.00 per year, foreign \$3.50.) Mail membership application and subscription to the Secretary, Mr. W. M. Ketteringham, 610 West 65th Street, Los Angeles, Calif.

Managing Editor, SCOTT E. HASELTON, Abbey San Encino, 6162 Pasadena Ave., Los Angeles, Calif.

Business and Advertising Manager, G. A. FRICK, 1800 Marengo St., Los Angeles, Calif.

VOL. IV

MAY, 1933

No. 11

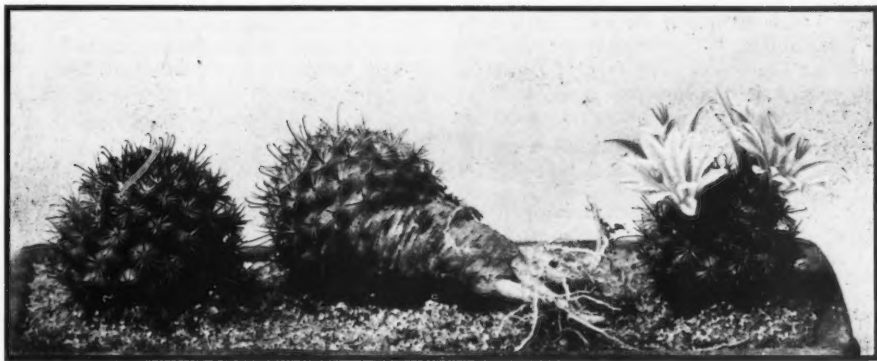
CONTENTS

New Neomammillarias from Lower California.....	Howard E. Gates	371-372
Notes on the Fifth Annual Cactus Show.....	Margaret C. Samuels	373-374
<i>Cereus Huntingtonianus</i> Weingart.....	William Hertrich	374-375
Notes on Britton and Rose.....	Edited by E. M. Baxter	377-379
A Contribution to the Knowledge of the Cacti of Mexico, Part II.....	Helia Bravo	380-381
What Grows Where.....	Mrs. John Wright & Anne Smith	382-383



Crassula arborescens growing at 1129 E. Ocean Blvd., Long Beach. The plant is 5 feet 6 inches in height and 8 feet across. It has five main stems, each 6 inches in diameter, and is completely covered with flowers. I have heard the following story about this plant from two sources, but have not further verified it: In its native habitat, this crassula grows so large that the stems are sometimes used as living coffins for defunct negroes. A slab is carefully cut from the stem, the inside hollowed out, the body put in in an upright position and the slab replaced. The margins heal over very quickly so that the remains are completely concealed and protected from possible marauders.

R. W. POINDEXTER.



Neomammillaria blossfeldiana collected at type locality x.5

Betzold's Studio

NEW NEOMAMMILLARIAS FROM LOWER CALIFORNIA

By HOWARD E. GATES

Neomammillaria blossfeldiana (Bodeker)
Gates, comb. nov.

In the *Monatsschrift der Deutschen Kakteen-Gesellschaft* for September, 1931, p. 209, Fr. Bodeker described a new species of *Neomammillaria*, based in part upon specimens collected by myself. While Bodeker correctly identified the species as a new one, he placed it in a genus which, outside of Germany, is generally recognized as being invalid. He also failed to cite a type specimen or to mention the type locality. It consequently becomes incumbent upon me to describe the species in the manner prescribed by the International Rules.

Planta solitaria, parte superiore globosa, usque ad diametron 5 cm. crescente, parte subterranea in radices carnosas fastigante; tubercula brevia, conii forma, 6 mm. alta, 6 mm. per medium, non lactea; axillae nuda; areolae orbiculatae; spinae radiales circiter 20, rectae, rigidae, aciculares, teretes, in 7 mm. longae, canae, apicibus fuscis; spinae mediae autem 4, omnes rigidae, teretes, porrectae, patulae, praeter infimam, quae ad longitudinem 1 cm. porrigit sed in hamo plerumque sursum flexo terminat, omnes in basi canae, reliqua parte primum purpurascens deinde nigrescens; flores 2 cm. longi, infundibuli lati forma, in 3 cm. lati, segmentis externis lineo-lanceolatis, in basi viridis, in apice puniceis, interioribusque 2 cm. longis, 5 mm. latis, obtusis, subpuniceis, media cum linea lata coccinea; fructus clavatus, 2 cm. longus, 5 mm. per medium, aurantio-ruber; semen diametro minus quam 1 mm., nigrum, nitens.

Plants usually solitary, rarely branching at the ground line, the upper portion globular, becoming 5 cm. in diameter, the lower conical embedded in the earth and ending in fleshy roots. Tubercles short, conic, 6 mm. high, 6 mm. in diameter, not milky. Axils naked. Areoles

small, orbicular, not setose. Radial spines about 20, horizontal or slightly elevated, straight, stiff, acicular, terete, to 7 mm. in length, grayish white with dark tips. Central spines 4, stiff, terete, porrect, spreading, except the lowermost which is porrect to 1 cm. long and ends in a usually upturned hook, all grayish white at base shading through purple to black. Flowers 2 cm. long, arising from near top of plant, broadly funnel-shaped, flaring to 3 cm. in width; outer perianth segments linear-lanceolate, green at base and tipped pink; inner segments 2 cm. long, 5 mm. wide, obtusely pointed, light pink with broad carmine central stripe. Filaments white with yellow anthers. Style pink with six green stigma lobes. Fruit clavate, to 2 cm. long and 5 mm. in diameter, orange red. Seed less than 1 mm. in diameter, oblong-spherical with small diagonally placed hilum, slightly punctate, black, shining.

TYPE: *Gates no. 144*, collected April 6, 1931, at Satna Rosalia Bay, Baja California (28° 40' N. 114° 10' W) and deposited in the Dudley Herbarium of Stanford University (no. 207821). The distribution of this species covers the coastal area surrounding the northern portion of Vizcaino Bay, Lower California.

SYNONYM: *Mammillaria blossfeldiana* Bodeker, *Monatsschr. D. Kakt.-Ges.* 3: 209. 1931.

The species is named in honor of Robert Blossfeld of Potsdam, Germany. It is the only *Neomammillaria* that has come to my attention that is deep-seated, fleshy-rooted, yet not milky (at least, in part) and the only one of this type with hooked spines. It is remarkable for

its beautiful spine patterns and magnificent flowers which often hide the plant. It is not a dry desert species, but grows only in cool, foggy belts near the ocean. The type specimen, in fact, grew barely a hundred yards from the surf, in a detrital slope. In the accompanying illustration, the type specimen is the one at the extreme right.

Neomammillaria capensis sp. nov.

Planta late racemosa, in ramos divisa plerumque apud basim, aliquando paulo supra; stripes cylindricatae, usque ad 25 cm. altae, 3-5 cm. diametro; radices fibratae; tubercula non lactea, brevia, turgida, constipata, olivacea; axillae nudae vel 1-3 setas erigentes; spina media 1, tenuis, porrecta, 15-20 cm. longa, firme hamata (hamo plerumque sursum verso), ad basim alba, altera in parte paulatim primo rubro-fulvescens tandem in apice nigrescens; spinae radiales 13, rigidae, aciculares, late patulae, 8-15 mm. longae, albae ad basim, paulatim usque ad apicem fulvescentes vel etiam nigrescentes; flores in circulo 3-4 cm. infra apicem plantae siti, puniceo, 2 cm. longi, segmentis late patulis; fructus clavatus, 2 cm. longus, nudus, aurantio-coccinus; semen punctatum, nigrum.

Plants freely clustered, branching usually from near the base, but occasionally higher up; stems cylindric, to 25 cm. high, 3-5 cm. in diameter; roots fibrous; tubercles not milky, short, turgid, crowded, olive-green; axils naked or containing 1-3 short bristles; central spine 1, slender, porrect, 15-20 cm. long, strongly hooked, the hook usually upturned, white at base shading through red-brown to black at tip;



Photo by Gates
Neomammillaria capensis sp. nov.
habit of typical plant

radial spines 13, stiff, acicular, widely spreading, 8-15 mm. long, white at base, shading to brown or black at tips; flowers borne in a circle 3-4 cm. below the top of the plant, pink, 2 cm. long, the segments spreading widely; fruit clavate, 2 cm. long, naked, orange-scarlet; seeds punctate, black.

TYPE: *Gates no. 68*, collected on a valley bottom 8 miles inland from Puerto de Bahia de los Muertos, Baja California (23° 50' N, 109° 50' W), March 8, 1931, and deposited in the Dudley Herbarium of Stanford University (no. 207822). The specific name is with reference to the occurrence of the plant in the Cape District of Lower California, although the distribution, as far as known at present, is confined to the type locality. Specimens are to be found in California and European collections under the collection number. The plant illustrated is a cultivated specimen collected at the same time and place as the type specimen.

BOOK REVIEW

THE STUDY OF CACTI by Vera Higgins, M.A., Blandford Press Ltd., 43 Blandford St., London, 7s. 6d. 160 pgs., 8 pgs. illus.

The Cactus world will welcome this new book and make available in condensed form Britton and Rose *The Cactaceae*. The chapters are:

1. Historical Record.
2. Classification of the Cactaceae.
3. Nomenclature.
4. Geographical Distribution.
5. Uses of Cacti.
6. Methods of Cultivation.
7. General Description of Cacti.
8. Descriptions of the Genera.

The author says:

"The chief intention of the book, besides giving some facts about the plants in a general way, is to give English people some idea of the Britton and Rose *Classification*; there are not many copies of Britton and Rose available for consultation in this country and to non-botanists the work is rather overwhelming, but many people, including the Continental dealers, are using the names and amateurs in England find it difficult to follow. The book is really the result of notes that I made when I first struggled with the subject, and whether it will help other people remains to be seen. I have dealt briefly with all the genera, but not with species."

Among the interesting material will be found: an alphabetical list of the generic names and the origin of the terms which, in most cases are descriptive of the plant; list of many of the specific names with their derivation; and a graph outlining the classification used by Britton and Rose.

The Cactus and Succulent Society of America endorses this book, since Britton and Rose has been accepted by them, as the most complete work on the classification.

Beginners will find this book very valuable as an introduction to the study of cacti.

SCOTT E. HASELTON.

NOTES ON THE FIFTH ANNUAL CACTUS SHOW

Cactus seedlings were numerically king at the Fifth Annual Cactus and Succulent Show held May 19-20-21 at the Rust Nursery in Pasadena. But the "other succulents" walked off with Grand Sweepstakes, so there you are! Altogether, there were one-third more entries than ever before, most of these being in individual classes, and did the very able and conscientious judges have to be nimble, both of wit and foot! The exhibit seemed very much at home in the two big greenhouses which offered an intimate study of specimens in a good light and comfortable temperature. Much gratitude to the Edward H. Rust Nurseries for their very detailed help in perfecting all arrangements! For they were turned inside out, literally and graciously.

The Grand Sweepstakes award was won by the Phandenbauer-Brown combination, those avaricious specimen hunters and ceaseless workers. "It's getting to be a habit with them." Will no one stop them? Their entry was a well balanced and artistic rock garden containing different specimens of succulents, tall euphorbias giving central height. Modestly tucked in the low border was the Best Succulent, *Haworthia viscosa*, a 3-ranked pinched-in understudy for *Cr. archeri*; also *Kalanchoe pilosa* with gray downy leaves, brown dotted at the edges, and *Cotyledon Orbiculata* x var. *pophylla* with small fleshy gray leaves, and some stunning new *crassulas* which should be noted later in the JOURNAL.

Second to this was the Schick Nursery's collection which contained a threat to the Best Succulents' award, *Tradescantia regina*, its lanceolate dark green leaves undersurfaced with dark purple, at their outer base 2" flowers of the same shade, the flowers faintly suggesting *calceolarias*. But alas, it is not classed even arbitrarily as a succulent, stunning as it is. Good young specimens of *asclepiads*, *euphorbias* and *sempervivums* were well represented.

Mesembs came decidedly to center front at this exhibit, causing the judges to strike careful individual averages on numbers, staging, and balance. A. Krejci won first with a compact showing in black painted boxes (lugs to us), some in bloom, and well balanced between shrub and sessile varieties, new and familiar. Two others were excellent, Saxton and Macdonald's, and Bob Frick's. Fleshy *Pleiospilos* (?) *Bolusii* resembling a serving of tenderloin steak was shown by Johnson's Water Gardens.

When you are assertedly 80 years old you will be fortunate to have an absorbing hobby like N. Greveling's. It is to graft succulents on a 5 in. *Aeonium arborescens* stock, about 50 shown here, all doing well, thank you, so well that a vivid imagination would forecast the necessity for making a tripod understock to bear the top-heavy bunch of sedums, *echeveria* crests and *sempervivums*. Cui bono? It is an amusing occupation and the sedums are especially well displayed by the method. All grow as well as on their own roots, *Sedum dasylphyllum* better, while all make nifty bouquets for table display.

For the puzzlement of the succulent-wise or otherwise public, G. A. Frick displayed leafy *Pereskia pereskia* and *Pereskia godsefeana* with spiny *Euphorbia dinteri* and *E. horrida*. Which were cacti, which "other succulents?"

Northern California's Branch presented a cup for originations by the owners to Dr. Poindexter, our Treasurer, for his scientifically purposeful results in

crossing *Aloe virens* with *A. humilis*, *Cephalophyllum acutum* with *C. alstoni*, and others of interest. First place went to A. Krejci. If his originations can be maintained, they will be very interesting. He crossed e.g., *Cephalophyllum acutum* (red) with *Hymenogyne laevis* (yellow) and got a terra cotta flower; *Faucaria boscheana* F. *tigrina* produced an excellent plant with gray green white spotted leaves. Paul Weber's *Aloe variegata* x *A. echinata* is good. W. H. Oliver gets a fine product from the seed parent *Euphorbia globosa* x *E. obesa*.

First on *euphorbias* went to J. M. Warner's fine healthy collection, on *sempervivums* to the Schick Nursery, on *crassulas* to A. Krejci.

Best landscape with succulents went to C. A. Swisher for a 9 sq. ft. placement of rocks and plantings so arranged that the mirror at the back helped to return a well proportioned and pleasing whole.

The threat to Grand Sweepstakes' winner was Howard Gates' landscape use of cacti from Baja Calif. It contained his now famous *Lophocereus gatesii* ('n't'), with its rather gray green body, 12-21 ribs, closer areoles, and consequently denser spines than the others of that genus, its long tip spines being a pleasing pink gray. His *Ferocactus townsendianus* is a handsomely deep ribbed melon of dark green body with 2" red spines and as long white bristles. The other three tall stands of *lophocerei*, normal and monstrous, were admirable. Or is *L. schottii* monstrous really *Weinbergia cereiformis*?

Southern California is getting down to brass tacks, or is it woody spines? For the cacti seedlings abounded by the thousand and excelled in physique. Five years hence may not our Tenth Annual be a vision of white fluffy globes of cacti, resembling those seen in photographs of German greenhouses? The desert need no longer be despoiled, we can love them and leave them and grow our own, smiling at importation restrictions. Who counted the hundreds of seedlings shown by Wright M. Pierce, winner of first, or Carl Brassfield's, a strong runner-up with older seedlings, or the thousands in the "lugs" from the Johnson Water Gardens? Sturdy spines with good body color, plenty of wool when so specified by nature, marked all specimens.

Not entered in competition, lucky for many, were several shelves of rare allied cacti. The top shelf held 11 *Cephalocerei*, the next 19 monotypic genera out of a possible 27, below were 12 very choice *Echinofossulocacti*, all well labeled and cataloged. Their owner is Carl Seelbach from whom we hope to hear later about this list of monotypic genera. This exhibit offered a fine bit of education in cacti, in making permanent labels, and in cataloging.

An excellent demonstration in visual education was R. W. Kelly's *Evolution of Cacti*, which showed series of about 50 cacti from *Pereskia pereskia* to the *Rhipsalis* and *Epiphyllums*. Many visitors spoke of its value to them.

Recently back from Baja California with W. T. Marshall came a huge crest of *Lemaireocereus thurberi*, a typical Devil's Thorne, which had been poised on a 20 ft. column. *Crestophiles* would also like his *Pedalanthus macrocarpus cristatus*, cresting about 15 in. up the stalk.

Have you a seedling which is starting to decay at the base? Or which is not thriving? Cut it sheer across, set it on a similar cut on *Cereus peruvianus*, do everything else correctly, and see your cacti thrive as did the many dozen done by Gilbert Tegelberg.

"Cactus Pete" showed a 150 headed clump of *Neomammillaria grasselliana*, 60 years old, and perhaps the largest *Brittonia davisii* in captivity. Mrs. Cactus Pete offered "Boston baked beans," large beads of *Sedum Stahlia* in a bean jar.

The Southern California Exchange Club presented a long row of individual exhibits, very few in competition. The Don Skinners had a colorful peat-bedded assortment of cauliflower sized *echeverias*, interesting in form and their own hybridizations. They were awarded a special, and are to be watched at future shows. H. K. Grimes' crest of *Echinocereus bonkerea* was in bloom, a deep purple. This is a new species.

The San Fernando Club made an attractive display of varied cacti and succulents, showing cultural skill in the good growth of their plants.

May we be forgiven for not mentioning the very many other fine entries? Space forbids. But the more than 2000 visitors will remember for a long time the pink and red epiphyllums, the little gardens, and countless specialties in which they were interested.

We were honored to have judging for us William Hertrich, Mrs. John Wright, and Ernest Braunton on Cacti, while James West, Will Orpet and Mr. Sexton judged Succulents.

In line for congratulations for a successful show (financial and scientifically) are the Show Committee with Carl Pfadenhauer for Manager, W. J. Surganty as Secretary, Carl Brassfield, Harry Johnson and R. W. Kelly.

MARGARET C. SAMUELS.

Cereus Huntingtonianus Weingart*

Edited by E. M. Baxter from material furnished by William Hertrich and James West.

The Huntington Botanic Garden sends the following material in order to make known to American collectors a new species of cactus described recently from specimens growing in the gardens at San Marino, California.

Long grown as "another specimen of *Cereus Childsii* there appeared differences to William Hertrich, Director of the Gardens, who says of it: "When I finally found the original description of *Cereus Childsii*, I was convinced that an error had been created by someone, as you can readily see from the original description. However, I did not want to take the matter upon myself entirely without investigating European records. Therefore I sent to Mr. Weingart, who is known as the best authority on *Cereus* in Europe, complete data describing both plants in question and asked him to search records in Europe which might lead to proper identification of these plants."

"Fortunately Mr. Weingart had the true *Cereus Childsii* Blanc, sent him many years ago and knew that De Laet in Antwerp as well as Haage & Schmidt handled the plant also. With this information on hand he went to work and settled the question with two articles in the 'Monatsschrift der Deutschen Kakteen-Gesellschaft,' describing *Cereus Childsii* in the July number, on page 144-145, and described *Cereus Huntingtonianus* in the August number pp. 165-168. With this letter is a copy of the description of *Cereus Huntingtonianus* which I sent to Weingart."

DESCRIPTION OF *Cereus Huntingtonianus*, Weingart

PLANT DESCRIPTION:—3 meters in height or more. 4 meters in diameter or more. Branching at base extensively; rebranching very heavily on the limbs. Diameter of older limbs up to 25 cm., on young growth up to 10 cm. Young growth is glau-

cous blue; old growth is glaucous gray. Ribs mostly 7, sometimes 6 or 8, 3 cm. high, 3-4 cm. wide at base, ½ cm. at the ridge; groove very sharply defined in young growth, very shallow in old growth, never rounded. Limbs grow in seasonal joints ranging in length 16-40 cm. Areoles about 3 cm. apart, nearly round, about 6 mm. in diameter in young growth, considerably enlarged on older growth. Spines protruding through lower half of areoles. Radial spines 1-4, 3-15 mm. long; when young gray and black. Central spine often missing, when present from 4-10 cm. long, mottled yellowish brown and reddish brown. Sometimes on old growth 3-4 radial spines reach a length of 4-8 cm. General habit of the plant is to grow broader than tall.

FLOWER:—Length of flower including tube and ovary 18 cm. Diameter of tube 2¾ cm.—slightly curved. Ovary and tube light green, very slightly ribbed. 4 or 5 large bracts below outside segments up to 2½ cm. long and up to 2½ cm. wide, reddish brown in color. Outside perianth segments green part way up the mid-rib, margin and terminals dark crimson, 4½ to 6 cm. long, 1½ to 2½ cm. wide, 4-6 in number.

2nd tier, same width, slightly longer, up to 7½ cm. long, terminating in a sharper and longer point than the outside ones. Green partway up the mid-rib, rose color on margins and terminal, about 6 in number. 3rd tier up to 2½ cm. wide, and 7 cm. long, terminating in a sharper point, slightly lighter in color than preceding ones, especially along margin, about 7 in number.

Inside perianth segments, 4th tier, rose pink in color, margins and terminal nearly white, slightly fringed, rounded to a point, and slightly shorter and narrower than preceding row, 15 to 18 in number. Total perianth segments between 34 and 37 in number. Inside measurement of tube from base of style to base of stamens, 4 cm.

S. amens 6-7 cm. long, white.

Anthers—nearly 5 mm. long, 1½ mm. wide, cream color.

Style—10½ to 12 cm. long, light green at base, cream turning to green below the lobes; very heavy, 5 mm. in diameter below the lobes, 4 mm. near the base.

Lobes—18 to 20 creaming yellow in color, thicker than in other *Cereus*, 22 mm. long.

* Illustrated on page 369.

FRUIT—Length of fruit up to 5 cm. Diameter up to $3\frac{1}{2}$ cm. Egg-shaped; smooth skin. Color of skin purplish red, fading to glaucous blue on the stem and blossom end. Blossom end forming hard crust, slightly cup shaped with base of style adhering tightly. Thickness of skin $\frac{1}{2}$ cm. Skin purplish red through entire thickness when fully ripe. Pulp—claret red.

This fruit indicates that the species belongs to the *Piptanthocereus* as photograph would indicate to you. However, it is somewhat different to the other species

since the pulp is red, and the skin does not burst when the fruit is ripe. But to the contrary, after maturing the fruit drops off and shrinks considerably in size, drying out completely which might indicate that the seed is of a late germinating character. However, this same condition applies to the fruit of *Cereus tetragonus*, except that the fruit in the latter case is only half the size.

SEED:— $2\frac{1}{2}$ mm. long by $1\frac{1}{2}$ mm. in diameter. Kidney shaped. Black, heavily pitted. One end flat, different shape from other *Cereus* seed.

CEREUS.

39

tion by the Society of American Florists, and for the third; a special prize by the Pennsylvania Horticultural Society.

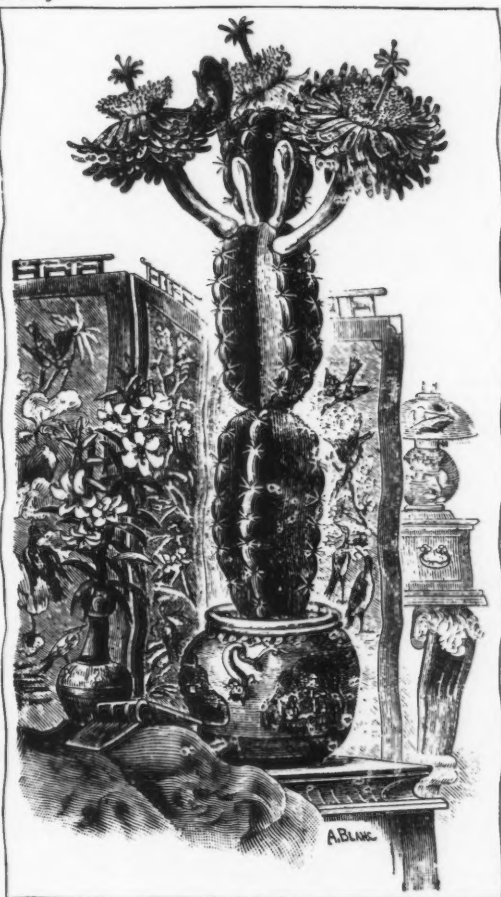
375. **CEREUS CHILDSI.**
(Blanc.) **A Pink Flowering Night-Blooming Cereus.**

The finest flowers that we have ever seen opened with us on a *Cereus* recently received from South America. The plant is new to us in of very stout, upright growth, with 4 much-compressed angles. It is a night bloomer, and the flowers, which are entirely distinct from any *Cereus* that we have ever seen, are composed of six rows of petals, numbering in all nearly 140. These are beautifully recurved, the innumerable stamens projecting well above them.

The entire flower measured 30 inches in circumference, and, most interesting of all, they were of a deep satiny pink, a color heretofore unknown among *Cereus*.

The fragrance exceeds that of the night-blooming *Cereus* in strength and sweetness. The plant is also of majestic upright growth, increasing in size about 12 inches in a season, but as it makes no side branches, it is extremely difficult to propagate. We have named this plant in honor of our friend, Mr. John Lewis Childs, of Floral Park, N. Y. Our stock is still so small that we cannot offer plants at less than \$3 each up to \$5, for specimens ranging in size from 1 to 2 feet. We have only a few smaller plants at \$2 each. It is the most remarkable flowering *Cereus* in existence and one that for us has grown equally well in loamy and coarse sandy soil. It enjoys full exposure to the sun.

We send 10 *Cereus* of our choice, in small plants, for \$2; larger plants, for \$4.



375. *Cereus Childsi.*

The original description of *Cereus childsi*; by A. Blanc in his catalog. This illustration is from a photostat furnished by Mr. Hertrich, Director of the Huntington Botanic Gardens.



Echinocactus polycephalus growing near Death Valley Junction, California. This cluster of 132 is 15 feet in circumference, 5 feet in diameter and 3 feet high. This plant attracts much at-

tention and photographs have been sent to the Editor by Wm. North Duane of Santa Barbara, Cal., Rudolf S. Rehak of Chicago, Ill., and Guy D. Haselton of Los Angeles, Cal.

To the Membership:

Notice is hereby given that, at the first regular meeting of the Cactus and Succulent Society of America held after the expiration of twenty-five days from the mailing of this issue of the JOURNAL, the following amendment to the By-Laws of the Society will be presented for consideration.

That section 1 of Article 11 of the By-Laws be amended to read as follows:

ARTICLE II Elections

Sec. 1. At a meeting held not later than October 15 of each year, the Executive Committee shall nominate and elect by ballot three members of the Society to serve as a Nominating Committee. The Nominating Committee shall select a list comprising one candidate for each elective office of the Society and shall report its list to the Secretary not later than November first. The Secretary shall then send to each regular member of the Society, together with the notice of the regular November meeting, a copy of the list of candidates selected by the Nominating Committee. At the regular November meeting of the Society, the Secretary shall read the list of candidates selected by the Nominating Committee and the President shall call for additional nominations from the floor for each elective office. Only those members present or those whose written permission to be nominated is presented at this time shall be eligible for nomination. The name of a member not in good and regular standing may not be placed in nomination by the Nominating Committee nor from the floor. Immediately after this meeting, the Secretary shall prepare ballots containing the names of the candidates selected by the Nominating Committee and also all those nominated from the floor. A ballot and a stamped envelope addressed to the Secretary shall be mailed to each member of the Society not later than December first. Only those ballots received before midnight of December fifteenth shall be counted. After being counted, ballots shall remain on file for a period of

thirty days and shall be open for inspection to any member of the Society. Officers shall assume office January first.

The changes from our present Article II, Sec. 1, effected by this amendment, would be as follows:

(1) The Nominating Committee, instead of being named from the floor of a meeting is elected by the Executive Committee.

(2) Provision is made for nomination from the floor, at the regular November meeting, of as many additional candidates as the members may desire and for placing the names of all such additional candidates together with the Nominating Committee's slate on the final ballot. No such provision now exists.

(3) The present provision for "writing in" names on the final vote is withdrawn, for two reasons: (a) The necessity for so doing is removed by Provision (2), above. (b) Owing to the difficulty of consultation or joint action in our geographically scattered membership, the election of a "written in" candidate is virtually impossible.

That the By-Laws be amended by inserting the following new section in Article I.

Sec. 5a. The Editor of the Society's Journal shall hold office until removal or upon resignation. In case a vacancy occurs, the Executive Committee shall appoint a member of the Society in good and regular standing to fill it.

(This amendment is designed to insure the continuation in office of a satisfactory Editor, and is in sympathy with the existing Article VII of the By-Laws, which places full responsibility for the conduct of the Journal on the Executive Committee.)

That Section 2 of Article II of the By-Laws be amended to read as follows:

Sec. 2. All officers except the Librarian and the Editor are elected to serve one year.

(Present text: "All officers except the Librarian are elected to serve one year.")

NOTE: The following 8 pages are from a part of the Britton and Rose reprint from Vol. I, The Cactaceae, as published by Carnegie Institution.



Figure 1. *Opuntia congesta*

The following is taken from the "Reports of the Missouri Botanic Garden":

NOTES ON BRITTON AND ROSE

Edited by E. M. BAXTER

OPUNTIA CONGESTA sp. nov.

A low, spreading, very compactly branched, cylindrical-jointed species, 4 to 5 dm. high and 9 to 12 dm. in diameter, having such a congested habit of growth that there is invariably a great deal of dead stuff in the center; joints variable, 1 to 2 dm. long and 8 to 12 mm. in diameter, tubercular with a low, flat tubercle about 8 mm. long, the upper slope more abrupt than the lower, sharply defined by a slightly but sharply sunken dark green line, which although becoming less distinct is perfectly distinguishable for two or three years, bright, moderately dark green turning dull and darker to even glaucous and finally scaly, gray-black upon old trunks; leaves 3 to 5 mm. long; subulate, mucronate, circular in section, and reddish tinged toward tip; areoles broadly obovate, 3 to 5 mm. long and about 1 cm. apart, tawny when young, but turning through light gray to black in age but having a proliferating tissue in its upper portion which develops new wool even upon three or four-year-old wood, this new growth continuing tawny during the current year, often eclipsing the earlier blackened growth, thus elevating the areolar area slightly higher than its original flattened state, often subareolate even when young; spicules yellow in compact tuft in upper portion of areole, commonly less than 1 mm. long, increasing slightly but less than

2 mm. and more numerous with age, often scarcely visible until late in the first season; spines normally 1, sometimes 2 or even 3, nearly erect, when more than one, the lower more or less recurved and in age in all cases always sloping downward, medium loosely sheathed with white glistening sheaths which are yellow distally, but spines at first red turning to flesh-colored, becoming chalky white later; flowers not seen; fruit distinctly and characteristically proliferous but usually producing some seed, tubercular, like stem even in age with the same sharp limiting dark lines surrounding the tubercles, its areoles obovate, about 2 mm. in greatest diameter, bearing a prominent bunch of yellow spicules about 1 mm. in length and the upper one usually bearing a typically sheathed spine 6 to 7 mm. long and 2 to 4 delicate, fugacious bristles 2 to 3 mm. long in lower portion of areole in addition to the regular tuft of shorter spicules, green or slightly yellowish tinged when mature but always greenish within, very variable in size, the proliferous forms being 1.5 cm. by 3 to 4 cm. while the less proliferous and fertile forms are 1 cm. by 1.5 to 2 cm.

The relationships of this species are somewhat ambiguous. It has some earmarks of *Opuntia neoarbuscula*, which it resembles in habit, but from which it differs decidedly in



Photo by courtesy of
Missouri Botanical Gardens

Figure 2. *Opuntia congesta*

its proliferous, tuberculate fruits, fewer spines, usually poor seed habits, and tuberculate stems. It resembles in some respects *Opuntia Kleiniae*, but its habit is entirely different and the fruits and stems are too tuberculate to be admitted into that species. It grows associated with a dwarf form of *Opuntia Whipplei*, some varieties of which it resembles in the tuberculation of its fruits, but these fruits are smaller, the plant is in general much less spiny, the stems are smaller and less tuberculate. On the whole, it probably belongs closer to *Opuntia neoarbuscula* than any other species. A single joint or some stems might be selected which would pass fairly well for *Opuntia arbuscula*, but the fruits will not admit of its being referred to this species.

In the above description the spicules are said to be yellow, and this is true of the type specimen. However, specimens were found after the description was written having reddish-brown spicules. So we must consider the spicules in this species, as in scores of others, to vary from yellow to reddish-brown when young. Upon old joints the reddish-brown spicules become a dirty yellow.

The type is No. 9568 D. G., collected near Hillside, Arizona, September 10, 1908. The description is a compilation of field notes taken beside the yellow-spiculed plant supplemented by laboratory studies of both varieties.—Plates 8; 2, f. 4 and 7; 13, f. 5 (seeds).

Figures 1 and 2 are made from Dr. Griffith's original photographs and are the same (except in size) as those published with the original description as Plate 8, mentioned in the copy of Dr. Griffith's description.

Interest in this species has been revived since the discovery of a specimen by Mr. A. Akin of Bard, California, referable to the species described by Griffiths. He reported the discovery of a "different" plant to Henry A. Morley of Bard who immediately set out to investigate and found several more plants of the same type.

From a complete set of specimens sent in by Mr. Morley it is evident that his plants are not *Opuntia arbuscula*, the species to which Britton & Rose refer *Opuntia congesta*, but should cause this latter species to be reinstated and be referred to it.

Through the cooperation of the Missouri Botanical Gardens we have been loaned their original photographs and a copy of the descrip-

tion of the species by Dr. Griffiths. The Herbarium specimen of this species has been lost so that we have at hand the complete material available on this species.



Photo by H. A. Morley

Figure 3. *Opuntia congesta*

Mr. Morley has been gracious enough to investigate every suggested detail and has sent additional material to clear up points in question. He asks that Mr. Akin be credited with the rediscovery of this species.

The following letter from Mr. Morley offers additional information:

"* * * The plant is bushy, compact, main branches at the round very woody; diameter of main branches at ground about 2 inches; diameter of plant 7 feet 6 inches one way, or the long way, and 6 feet the narrow way. Height 2 feet 8 inches. The following plants are growing in the same neighborhood:

<i>Opuntia leptocaulis</i>	20 feet away
<i>Opuntia ramossissima</i>	40 " "
<i>Opuntia parishii</i>	75 " "
<i>Echinocactus polycephalus</i>	30 " "
<i>Echinocereus engelmannii</i>	40 " "

"Photo No. 5 (not shown) is an *Opuntia* growing about 30 feet from the plant and the same kind of plant grows all around. (The specimen mentioned is *Opuntia acanthocarpa*.)

"The other photos (Fig. 3. is one) are new plants found in the same vicinity. I found seven plants in all within an area of less than a mile. All are absolutely covered with fruit. I am sending you a cutting showing how thick the fruit sets. Another cutting is from one plant with fruits which seem to be covered with spines and are brown, while the other has them red and spineless. I thought perhaps the gray

or brown fruit was last year's and possibly faded out, as they do not seem to be fresh.

"We covered an area of about one mile from the plants very thoroughly, only finding the seven plants."

The specimens discovered by Messrs. Akin and Morley are quite a distance from Hillside, the type locality, but are not too far to be considered out of range. The new specimens are from the desert near Yuma, Arizona.

NOTES BY FRICK

C. W. Armstrong of Vancouver, B. C., writes to inform us that there are still more species of cactus found as far north as *Opuntia polyacantha* is known to occur. At 56 Fort St. John in British Columbia, *Opuntia rhodantha* with red flowers has been found. The northern extension of this species is accounted for by Mr. Armstrong as having undoubtedly been carried that far north in the hair of the Buffalo; probably from Utah, as one bank of the river at Fort St. John is pitted with buffalo-wallows. He also informs us that *Mammillaria missouriensis* has been reported found near Regina, Saskatchewan.

Pereskia which is generally regarded as representing the most primitive type of the cactus, is the only one having leaves as we know them. The flat joints of the *Opuntia*, the segments of the *Cereus*, and the leaf-like parts of the *Rhipsalis* are not true leaves but simply modified parts of the stem.

Get set for something new and interesting in the near future. Forrest Shreve has just returned from a field trip to the vicinity of Cajeme Mexico where he discovered an extremely striking new *Peniocereus* with stems three feet long, and spines half an inch in length. The tubers which are the size of hens' eggs grow in rock with very little dirt.

Dr. E. Werdermann, president of the Deutschen Kakteen Gesellschaft, and director of the Berlin Botanic Gardens is making a study of Cactus and Succulents at the Huntington Botanic Gardens. A lecture at one of the Cactus Society's meeting will be announced soon. This is the Doctor's first visit to America.

A unique stunt devised by Dr. A. D. Houghton in the building of a new hothouse at his gardens in San Fernando, is to have every visitor drive one nail. That this greenhouse will be a long time under construction is conclusive.

Agave margaritae, which grows abundantly on the islands of Santa Margarita, and Magdalena off the coast of Baja California, is never found on the mainland. It is claimed by the inhabitants not to be good for the making of "mescal." The flowers of this species fill to overflowing with nectar so that it is often seen running down the stem; this undoubtedly accounts for the loss of the mescal producing sugar which the plant does not possess.

The following book reviews will appear in the June issue: "The Study of Cacti" by Vera Higgins. "Die Sukkulanten" by H. Jacobsen. "Brasilien und Seine Saulenkakteen" by Dr. E. Werdermann.

A CONTRIBUTION TO THE KNOWLEDGE OF THE CACTI OF MEXICO, Part II

(Translation of an article in Vol. II, No. 1, of the "Annals of the
Institute of Biology" of the University of Mexico.)

Notes on the Histology of the Peyote, *Lophophora williamsii*, Lemaire.
Presented at the Ninth National Medical Congress.
By HELIA BRAVO, H., of the Biological Institute

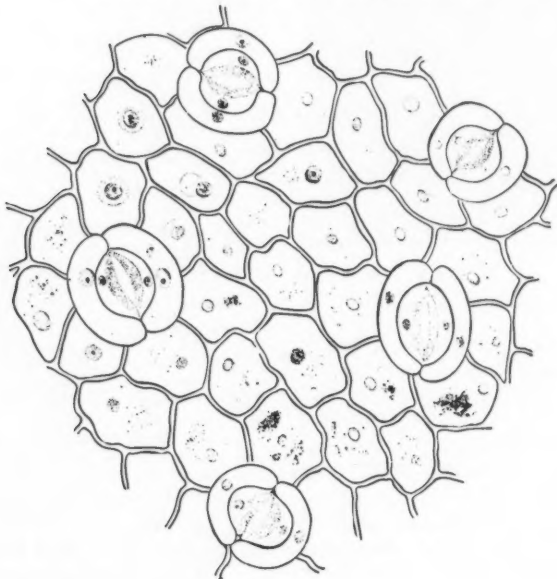


FIG. 3. Drawing made with a camera lucida showing the epidermal cells and the stomata, viewed from above.

The structure of the epidermal cells varies according to the part of the plant in which it is found.

In the central meristem, or point of growth, they are little differentiated, being small, spherical, with a large nucleus which is also spherical. The cell walls are thin and lacking in cuticle. There are no stomata in this part of the plant. As the cells grow farther away from this point they acquire the characteristics of adult cells as found in the other parts of the upper portion of the stem.

Viewing the upper surface, cells show a sinuous outline, and in the center may be distinguished a circle that corresponds to the optical section of the papilla with which they are provided; this conical papilla may be better seen by studying the peripheral cells; their

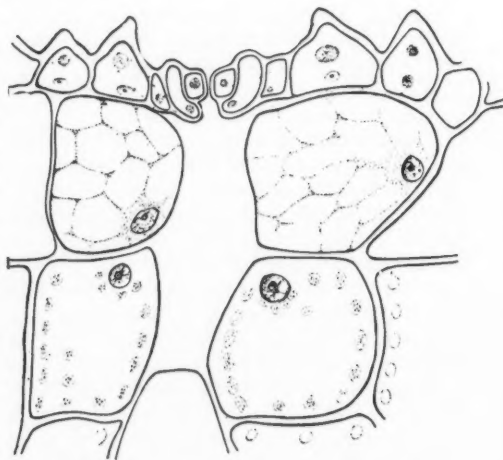


FIG. 4. Drawing made with the camera lucida in which is shown a stoma cut transversely.

presence indicates that they are photoleptic organs; according to Haberland, the cell walls are provided with an external covering of cutin, which was demonstrated by the micro-chemical reactions used. In the protoplasm of many of these cells appear grains of calcium oxalate.

The surface particles found nearer the hypogean, or underground section of the plant-body thicken their cell walls by a deposition of additional layers of cellulose and because of this the light entering the cells is reduced. The layer of cutin is also thickened. In the hypogean part of the plant, as well as in the roots, the epidermal layer disappears and is replaced by a corky tissue which flakes off easily.

The stomata become differentiated very close to the point of growth.

In order to study these I used the following technique, which was the one that gave the best results: Particles of the epidermis were carefully removed and fixed for 12 hours in absolute alcohol, some were dyed with congo red or with Mayer's hemalum.

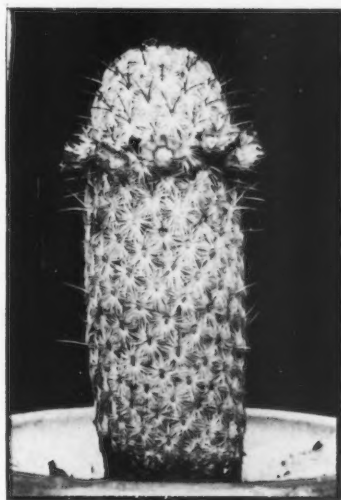
The embryonic stomata, close to the meristem (growing point) consist solely of guard cells and are very numerous. A centimeter $\frac{1}{2}$ inch from this point they begin to differentiate, all stages of their development being met with. The adult stomata are also very numerous, especially on the tubercles. The guard cells have their protoplasm finely granulated, with some chloroplasts. At each side of these latter are two half-moon shaped adjuncts whose protoplasm is free of inclusions.

One of the most important peculiarities, be-

cause it has to do with the location of these organs, is that, at times, they are found at the bottom of depressions formed in the epidermis. (See Fig. 5).

In the areoles of the tubercles, in the central part as well as in the rest of the plant, we find epidermal modifications, namely hairs, which make up the armor of many cacti. These organs measure 6 mm. ($\frac{1}{4}$ inch) in length and are implanted in a tissue made up of dead cells, packed together, and which come from a constant activity in an embryonic tissue within the areole. The hairs are multicellular and at the base, in several series, but they end in a single-cell: all of the cells which make it up are dead, and in the interior of them at times may be seen granular particles that possibly are protoplasmic remains. The chemical analysis shows that its membranes are cutinized.

(To be continued)



Neomammillaria microbelia rubrisperia. 2 to 3 red-black centrals. Radial spines light color and slightly recurved. Flowers cream-yellow, pink lined. From McCabe Cactus Gardens.

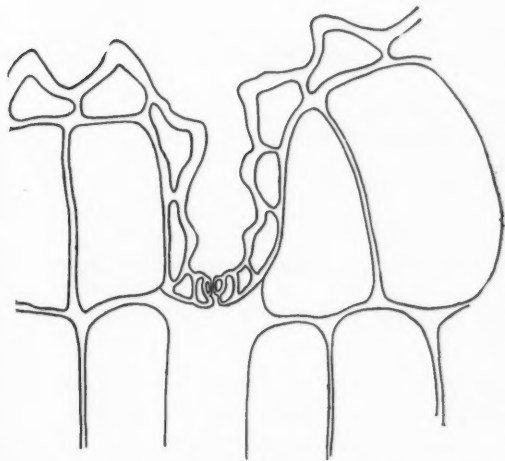


FIG. 5. Drawing of a stomatic structure located in a depression of the epidermis.

An Eastern horticulturist announces that tin cans are the best flower pots. They may not look as nice, but he assures us that our cactus and succulents growing in them will look much thriftier and prettier than if they were in clean clay pots. The non porous can preserves the moisture in a dry atmosphere while the ordinary porous clay pot dries out too rapidly. He, of course, has in mind the growing of plants in a heated living room during the long winter months. W. I. Beecroft, of Escondido, Calif., has practiced this for a number of years as a necessity for water conservation and with good results. Where water is both cheap and plentiful there is no question but that the porous clay pot is ideal for both succulents and cacti for the very good reason that they do dry out rapidly.

WHAT GROWS WHERE

Cacti Listed in Accordance With Their Geographical Origin*

Compiled and Copyrighted for Mrs. John D. Wright, Santa Barbara, Calif., 1933

By ANNE SMITH

ARIZONA (Continued)

(Subtribe 4. Echinocactanae)

F. lecontei

TYPE LOCALITY: Lower parts of the Gila in western Arizona.

DISTRIBUTION: Southern California along the Colorado, northern Lower Calif., Sonora, and east into Utah and Arizona. The geographic limits of the plant are ill-defined.

F. johnsonii

TYPE LOCALITY: Near St. George, Utah.

DISTRIBUTION: Northwestern Arizona, eastern California, western Utah and southern Nevada.

Echinomastus gen. nov.

E. erectocentrus

TYPE LOCALITY: Near Benson, Arizona.

DISTRIBUTION: Southeastern Arizona.

Echinomastus gen. nov.

E. intertextus

TYPE LOCALITY: Not definitely cited.

DISTRIBUTION: Southwestern Texas, to southeastern Arizona and northern Mexico.

Echinocactus

E. xeranthemoides

TYPE LOCALITY: Kanab Plateau on the borders of Utah and Arizona.

DISTRIBUTION: Extreme southwestern Utah and northern Arizona.

E. horizontalonius

TYPE LOCALITY: Not cited.

DISTRIBUTION: Western Texas, southern New Mexico to Arizona and northern Mexico.

Scletocactus gen. nov.

S. whipplei

TYPE LOCALITY: On the Little Colorado in Arizona.

DISTRIBUTION: Northern Arizona, southeastern Utah, and western Colorado.

S. polyancistrus

TYPE LOCALITY: At the head of the Mojave River, California.

DISTRIBUTION: Deserts of California and Nevada; reported from western Arizona.

SUBTRIBE 6. CORYPHANTHAE

Coryphantha

C. robustispina

TYPE LOCALITY: Cited first at Sonora; then at south side of the Baboquiveri mountains in Northern Sonora.

DISTRIBUTION: Mountains of southern Arizona, southwestern New Mexico, and northern Sonora.

C. chlorantha

TYPE LOCALITY: Southern Utah, east of Saint George.

DISTRIBUTION: Southern Utah, western Arizona, central Nevada, and eastern southern California.

*Unless otherwise stated the specimens mentioned have been described in The Cactaceae by Britton and Rose.

C. arizonica

TYPE LOCALITY: Northern Arizona.

DISTRIBUTION: Northern Arizona, especially along the Upper River of the Grand Canyon, and perhaps also in southern Utah.

C. aggregata

TYPE LOCALITY: Head waters of the Gila.

DISTRIBUTION: Western New Mexico, southeastern Arizona, and northern Sonora.

C. recurvata

TYPE LOCALITY: Sonora. Eastern parts of Pimeria Alta in Sonora, especially in the Sierra del Pajarito.

DISTRIBUTION: Arizona and Mexico, especially along the United States-Mexican boundary near Nogales.

Phellosperma gen. nov.*P. tetrancistra*

TYPE LOCALITY: San Felipe, California.

DISTRIBUTION: Western Arizona, southeastern California, southern Utah, and southern Nevada; probably northern Lower California.

Neomammillaria nom. nov.*N. macdougalii*

TYPE LOCALITY: Near Tucson, Arizona.

DISTRIBUTION: Southeastern Arizona.

N. lasiacantha

TYPE LOCALITY: On the Pecos in western Texas.

DISTRIBUTION: Western Texas and northern Chihuahua, Mexico. Reported also from Arizona, but doubtless incorrectly.

N. oliviae

TYPE LOCALITY: West of Vail, a flag station on the Southern Pacific Railroad, near Tucson, Arizona.

DISTRIBUTION: Mountains and deserts of Arizona.

N. viridiflora sp. nov.

TYPE LOCALITY: Not cited.

DISTRIBUTION: Collected on Superior-Miami Highway, near Boundary Monument, between Pinal and Gila counties, Arizona, 4,700 feet elevation, and also near Tula Spring, south of Aravaipa, Arizona.

N. wilcoxii

TYPE LOCALITY: Arizona.

DISTRIBUTION: Southeastern Arizona. It should be looked for in northern Sonora.

N. microcarpa

TYPE LOCALITY: On the Gila, 3,000 to 4,000 feet above the sea.

DISTRIBUTION: Southwestern Texas and Chihuahua to Arizona and Sonora; recorded from southern California and southern Utah.

N. milleri sp. nov.

TYPE LOCALITY: Not cited.

DISTRIBUTION: Collected near Phoenix, and in Kingman, Arizona.

N. fasciculata

TYPE LOCALITY: Along the Gila River.

DISTRIBUTION: Southern Arizona.

The San Fernando Valley Cactus and Succulent Society will have their first Cactus Show on June 2 and 3 at 810 Porter Ave., San Fernando, Calif.

LISTS RECEIVED

R. W. Kelly, 2223 Vestal Ave., Los Angeles, Cal.
8 mimeo sheets—free.

Schick Nursery, 715 S. Central Ave., Glendale, Cal.
List free.

Ernest Braunton has generously furnished seeds of *Ferocactus wislizeni* to be distributed free to members of the Society. These seeds were recently collected in Texas. Send a self addressed stamped envelope to the Secretary.

THE CACTUS AND ITS HOME by Forst Shreve. One of the best books of the year. \$3.00. 1800 Marengo St., Los Angeles.

SPECIAL this month: 10 named Sedums postpaid \$1.00. **KNICKERBOCKER NURSERY**, R. 1, San Diego, Calif.

VISITORS ARE WELCOME at the home of our Show's prize winning cactus collection. An abundance of propagations and seedlings. **HOWARD E. GATES**, 117 S. Illinois St., Anaheim, Calif.

CACTUS AND ROCK GARDEN PLANTS—From Texas' largest collection. Lists wholesale and retail, also seeds. **SHINER CACTUS NURSERY**, Box 2, Laredo, Texas.

LARGE QUANTITIES of large size *Ariocarpus Fisuratus* and *Echinocactus Horizontaloni* at special prices. Write for price list on other Cacti and Succulents. **A. R. DAVIS**, P. O. Box 167, Marathon, Texas.

30 CACTI in 10 varieties \$1.00 (no *Opuntias*). Large specimens of *Homalocephala texensis*, *Echinocereus reichenbachii*, *caespitosus*, *dasyacanthus*. *Hamatocactus setispinus*. *Coryphantha vivipara* and *Neomexicana* 10c each. \$1.00 per dozen. **GUY QUINN**, R. 2, Eastland, Texas.

MEXICAN CACTI. 100 different cacti postpaid U.S. \$25.00. 1000 different cacti (at least 100 different species) postage free U. S. \$125.00. **CACTI SEEDS**. Fresh seeds from my own open air plantations. Germination certain. I possess special Mexican Government export permit. Ask for list. **FERDINAND SCHMOLL**, Cadereyta, Qro. Mexico.

THE CACTUS BOOK, by A. D. Houghton

From this book you will learn the secrets of successful watering, how to grow Cacti from seeds, how to propagate the rare species by grafting, how to hybridize, how to have a Cactus rockery, how to grow indoors in pots, and on window sills, how to purchase and trade to get new sorts and what kinds to grow for different effects. Also introduces you to more than 1,000 different kinds of Cacti with information for selecting the types you need for every purpose and location.

Price \$2.25 Postpaid
Cactus & Succulent Society of America
1800 Marengo Street, Los Angeles, Calif.

PHYLLOCACTUS SPECIALIST

SINCE 1916 IN LOS ANGELES

WILSHIRE ROCKCRAFTS &
CACTUS GARDENS

R. F. KADO, Manager

2,000 Plants Ready for Market

14 Varieties Phyllocactus

TELEPHONE SANTA MONICA 23057

2914 WILSHIRE BOULEVARD

SANTA MONICA, CALIFORNIA

CACTUS CULTURE

This is the most up-to-date, practical and comprehensive book published on the culture of Cacti. The most experienced as well as the beginner will find in this book suggestions which will prove both profitable and interesting. 186 pages 5 1/2 x 8 with fabrikoid binding. Price \$2.00. Cactus & Succulent Society of America, 1800 Marengo St., Los Angeles, Calif.

BOUND VOLUMES of the Cactus Journal, Vol. 1, II, and III, are now on sale; these will be very valuable before many years, so take advantage of the opportunity at this time, price \$6.00 per volume. **CACTUS AND SUCCULENT SOCIETY**, 1800 Marengo St., Los Angeles, Calif.

Member H. Lightfoot Forbes of Maryland has presented the society library with two large photographs of the Hovey collection of Cactus and Succulents taken in Boston, Mass., 55 years ago. Mr. Hovey was the creator of *Echeveria hoveyi*, a hybrid.

For many years we have heard of a red flowering *Peniocereus greggii*, but we have never had the pleasure of seeing one. Like an epidemic of smallpox, they are mentioned or placed on sale about every second year. The proud owner of one of these always shows it off in the most conspicuous spot in his collection labeled "P. greggii Red Flower" until the plant flowers when the label is changed to read "P. greggii Humbug."

A letter from Hans Trinkner, a new German member, has me curious, here is the letter: "I herewith acknowledge receipt of your Cactus Journal. Its contents and illustrations exceeded my expectations by far. Will you kindly send me another issue of Vol. 4 No. 8, which I am returning to you as part of page 283 has been cut out by some one in our post office here." The section cut out from this page was "Frick's Notes." I therefore address this to the mail scrutinizing postal clerk at Chemnitz Germany. Tell me, were they too poor for circulation through the German mails, or were they just too good to pass up?"

THE CACTACEAE

By BRITTON & ROSE

Vol. 1 out of print.

Vol. 2 only a few

left \$25.00

Vol. 3 14.00

Vol. 4 18.00

Set of 3 volumes \$57.00

This is cost price, cash must accompany each order. Sent postpaid. Address all orders to Cactus & Succulent Society, 1800 Marengo Street, Los Angeles.

